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BEVERAGES

1897 ①

RECORDED

31

Wines

N° 978



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PROVISIONAL SPECIFICATION.

Process for the Production of Non-alcoholic or Feebly Alcoholic Fruit Juices (Fruit and Grape Wines) which may be Kept or Preserved without Change.

I, HERMANN MÜLLER-THURGAU, Director of Wine Growing School, of Waedensweil, near Zurich, in the Republic of Switzerland, do hereby declare the nature of this invention to be as follows:—

As is known the alcoholic fermentation of the juice of fruits is due to the presence or the introduction therein of bacteria, microscopical mushrooms or fungi, and particularly of the yeast microbe.

This invention for a process for the production of preservable non-alcoholic or feebly alcoholic fruit juices (fruit or grape wines) has for its object to kill the fermentation producing microbes contained in the liquid and to prevent or arrest the fermentation and obtain a non-alcoholic or slightly alcoholic drink that will keep as well as a fermented drink.

In carrying out this invention:—The pieces of fresh fruits (various fruits, grapes *etc.*) separated from the skins and stones are submitted out of contact with the air, to the action of steam or hot water in such manner that they are raised to a temperature of about 60° to 70° Celsius for about half an hour. By this heating the mucilaginous substances which may be in suspension in the liquid fall as a flocculent precipitate, and the microbes *etc.* are killed. After this heating the liquid is conveyed by sterilised pipes into sterilised containers which have been submitted for a quarter of an hour to the action of steam or hot water.

The air entering these containers after their sterilisation is obliged to pass through an air filter.

The liquid is allowed to rest a certain time in these containers so as to allow the disturbing substances to in a large measure deposit themselves. The liquid is then filtered in suitable apparatuses (the operation would not be possible before heating on account of the large quantity of mucilaginous substances contained in the liquid) and again submitted for about half an hour, not in contact with air to a temperature of about 60° to 70° Celsius, so as to destroy the bacteria, mushrooms or fungi which might have become introduced during the operations of filtering and filling.

As is known, the colouring matter contained in the skin (peel husk *etc.*) of certain fruits notably red and blue grapes is only dissolved in the juices of these fruits on the alcoholic fermentation thereof, and this is why to obtain coloured juices the skins are submitted to fermentation at the same time as the juice. With our process if it is desired to obtain fruit juices coloured naturally, without their being alcoholic, it is necessary that the colouring matter be introduced into the juice in a special manner.

We can proceed with this object in two different manners:

1. The juice is submitted for several minutes at the same time as the skin to the action of heat of about 60° Celsius. By this heating the colour cells of the fruit

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Process for the Production of Non-alcoholic or Feebly Alcoholic Fruit Juices.

skins open so that the colouring matter can mix with the juice. The juice is then separated from the skins and the process above described is applied.

2. The juice separated from the skins is first heated to 60° Celsius and then conducted through a suitable reservoir which contains the skins. The colour cells of these skins are then opened by the heat and the colouring matter can mix with the juice. Only after this mixing is the juice submitted to the process above described. 5

If instead of operating on the fresh juice, the fermentation is allowed to establish itself, drinks are obtained slightly alcoholic, to the desired degree, according to the time during which the fermentation takes place, that is to say, depending on the moment when the juice is submitted to the above mentioned process. 10

Dated this 13th day of January 1897.

WHEATLEY & MACKENZIE,
40 Chancery Lane, London, W.C., Agents.

COMPLETE SPECIFICATION.

Process for the Production of Non-alcoholic or Feebly Alcoholic Fruit Juices (Fruit and Grape Wines) which may be Kept or Preserved without Change. 15

I, HERMANN MÜLLER-THURGAT, of Waedensweil, in the Republic of Switzerland, Director of Wine Growing School, do hereby declare the nature of this invention, and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:— 20

As is known the alcoholic fermentation of the juice of fruits is due to the presence or the introduction therein of bacteria, microscopical mushrooms or fungi, and particularly of the yeast microbe.

This invention for a process for the production of preservable non-alcoholic or feebly alcoholic fruit juices (fruit or grape wines), has for its object to kill the fermentation producing microbes contained in the liquid and to prevent or arrest the fermentation and obtain a non-alcoholic or slightly alcoholic drink that will keep as well as a fermented drink. 25

In carrying out this invention:—The pieces of fresh fruits (various fruits, grapes *etc.*) separated from the skins and stones are submitted out of contact with the air, to the action of steam or hot water in such manner that they are raised to a temperature of about 60° to 70° Celsius for about half an hour. By this heating the mucilaginous substances which may be in suspension in the liquid fall as a flocculent precipitate, and the microbes and the like are killed. After this heating the liquid is conveyed by sterilised pipes into sterilised containers which have been submitted for a quarter of an hour to the action of steam or hot water. 35

The air entering these containers after their sterilisation is obliged to pass through an air filter.

The liquid is allowed to rest a certain time in these containers so as to allow the disturbing substances to in a large measure deposit themselves. The liquid is then filtered in suitable apparatuses (the operation would not be possible before heating on account of the large quantity of mucilaginous substances contained in the liquid) and again submitted for about half an hour, not in contact with air to a temperature of about 60° to 70° Celsius, so as to destroy the bacteria, mushrooms or fungi which might have become introduced during the operations of filtering and filling. 45

The temperature must be between 60° and 70° Celsius for half an hour, a temperature of 60° or a temperature between 60° to 70° for less than half an hour, will not completely sterilise the yeast-microbe and a temperature above 70° will give a disagreeable taste, very prejudicial to the normal flavour, 50

Process for the Production of Non-alcoholic or Feebly Alcoholic Fruit Juices.

As is known, the colouring matter contained in the skin (peel husk *etc.*) of certain fruits notably red and blue grapes is only dissolved in the juices of these fruits on the alcoholic fermentation thereof, and this is why to obtain coloured juices the skins are submitted to fermentation at the same time as the juice. With
 5 our process if it is desired to obtain fruit juices coloured naturally, without their being alcoholic, it is necessary that the colouring matter be introduced into the juice in a special manner.

We can proceed with this object in two different manners:

1. The juice is submitted for several minutes at the same time as the skin to the
 10 action of heat of about 60° Celcius. By this heating the colour cells of the fruit skins open so that the colouring matter can mix with the juice. The juice is then separated from the skins and the process above described is applied.

2. The juice separate from the skins is first heated to 60° Celcius and then conducted through a suitable reservoir which contains the skins. The colour cells of
 15 these skins are then opened by the heat and the colouring matter can mix with the juice. Only after this mixing is the juice submitted to the process above described.

If instead of operating on the fresh juice, the fermentation is allowed to establish itself, drinks are obtained slightly alcoholic, to the desired degree, according to the time during which the fermentation takes place, that is to say, depending on the
 20 moment when the juice is submitted to the above mentioned process.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed I declare that what I claim is:—

1. A process for the production of preservable fruit juices without alcohol consisting in subjecting the fruit juices separated from the skins and the stones, out of
 25 contact with air, for about half an hour to the action of steam or water heated to about 60° to 70° Celcius, and then leading this juice through sterilised pipes into containers also sterilised, afterwards filtering the juices and subjected them to another similar heating.

2. A process for the production of naturally coloured and preservable fruit juices consisting in subjecting the fruit juice and the skins for several minutes to the action of the heat and in then separating the juice from the skins and in subjecting the juice out of contact with air, for about half an hour to the action of steam or
 30 water heated to about 60° to 70° Celcius, and then leading this juice through sterilised pipes into containers also sterilised, afterwards filtering the juices and
 35 subjecting them to another similar heating.

3. A process for the production of naturally coloured preservable fruit juices consisting in passing the fruit juice suitably heated and freed from the skins and stones through a reservoir which contains the skins and in then subjecting out of
 40 contact with air, for about half an hour to the action of steam or water heated to 60° to 70° degrees Celcius and then leading this juice through sterilised pipes into containers also sterilised, afterwards filtering the juices and subjecting them to another similar heating.

4. A process for the production of preservable fruit juices containing little
 45 alcohol, consisting in fermenting the juices until the desired degree of alcohol is obtained and in then subjecting the fruit juice out of contact with air, for about half an hour to the action of steam or water heated to about 60° to 70° Celcius, and then leading this juice through sterilised pipes into containers also sterilised, afterwards filtering the juices and subjecting them to another similar heating.

50 Dated this 7th day of July 1897.

WHEATLEY & MACKENZIE,
 40 Chancery Lane, London, W.C., Agents.